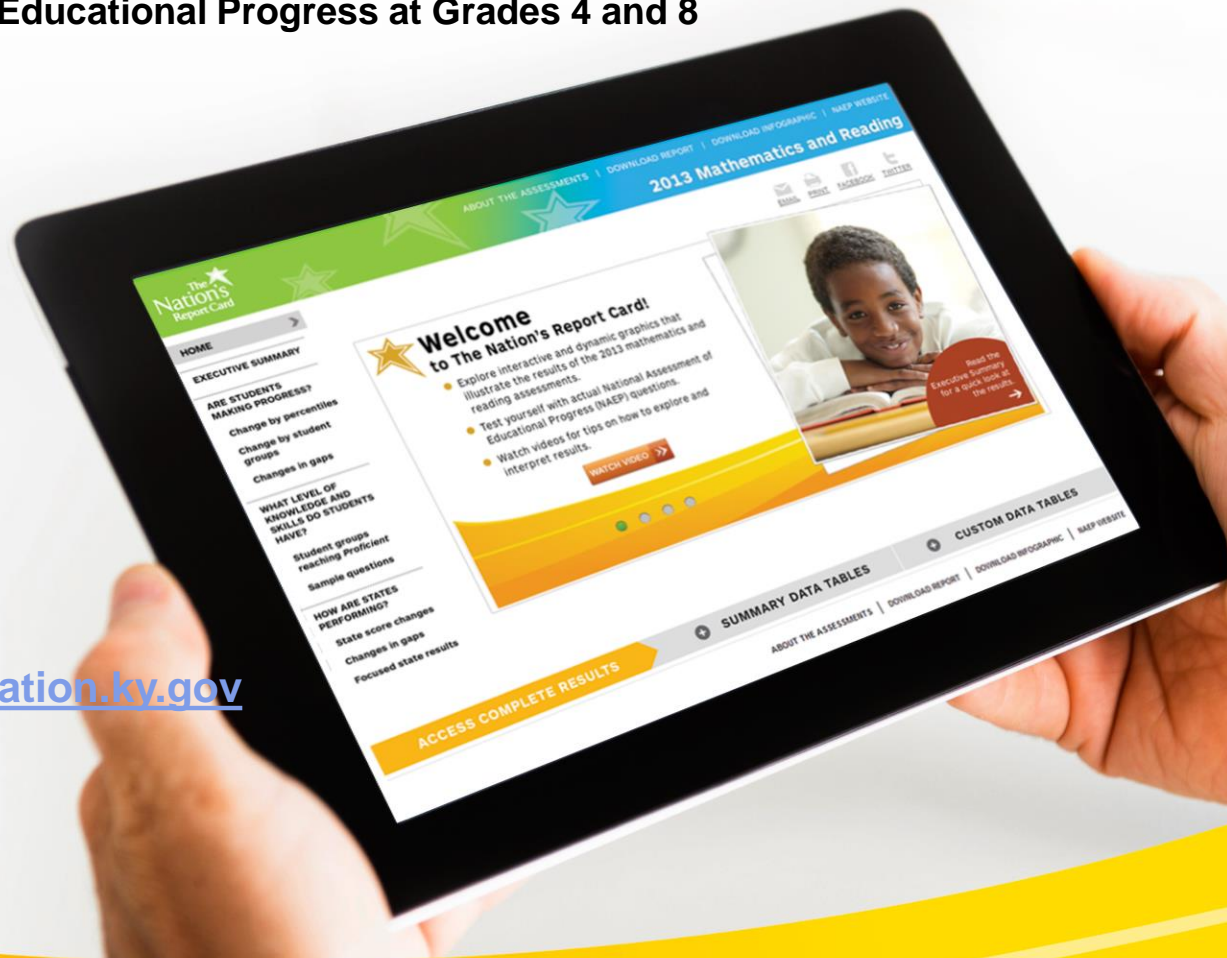


2013 NAEP Mathematics

National Assessment of Educational Progress at Grades 4 and 8

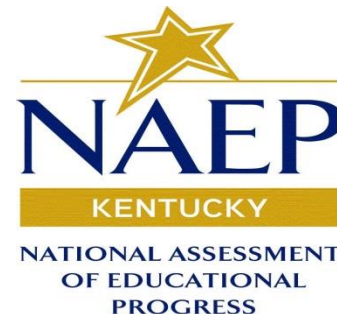


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2013 KY Mathematics

NAEP 2013

Mathematics

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What is NAEP?

- The National Assessment of Educational Progress (NAEP) is the largest continuing and nationally representative assessment of what our nation's students know and can do in core subjects.
- A survey designed to produce national, state, and select urban district level results.
 - NAEP results are for populations of students, not for individual students nor schools.
 - Measures student performance nationally and reports changes over time.
 - Allows comparisons between states and the nation.

NAEP School and Student Selection

- NAEP uses a carefully designed sampling procedure for the assessment to be representative of the geographical, racial, ethnic, and socio-economic diversity of schools and students in the state.
 - First, schools are selected to be representative of schools.
 - Then, within each chosen school students are randomly selected to participate. Each participating student represents hundreds of other similar students.

2013 NAEP Administration:

- NAEP was administered over a six-week period. **January 28th – March 8th**
- About 3,000 students in approximately 100 schools are selected in each state for each grade and subject.
 - Each student is only assessed in one subject area.
 - Students only take a small portion of the assessment
 - Accommodations are provided as necessary for students with disabilities and English language learners.

NAEP Results



- The results of NAEP are released as *The Nation's Report Card*.
 - The report card provides national, state, and district-level results, results for different demographic groups, inclusion information, and sample questions.
- NAEP Results are reported in two formats
 - Average Scale Scores
 - Numeric scale
 - 0 – 500 on mathematics and reading assessments
 - Scores cannot be compared across content areas
 - Achievement Levels
 - Categorical scale
 - Below *Basic*, *Basic*, *Proficient*, *Advanced*



Student, School/District Characteristics for Kentucky Public Schools



| Student Characteristics | Racial/Ethnic Background | School/District Characteristics |
|---|--|--|
| Number enrolled: 673,128 | White: 81.9% | Number of school districts: 174* |
| Percent in Title I schools: 84.1% | Black: 10.8% | Number of schools: 1,577 |
| With Individualized Education Programs (IEP): 15.2% | Hispanic: 3.9% | Number of charter schools: N/A |
| Percent in limited-English proficiency programs: 2.4% | Asian/Pacific Islander: 1.4% | Per-pupil expenditures: \$9,091 |
| Percent eligible for free/reduced lunch: 56.6% | American Indian/Alaskan Native: 0.1% | Pupil/teacher ratio: 16.0 |
| | | Number of FTE teachers: 43,451 |

2013 NAEP Participation School and Student Counts



Total number of schools that participated:

- Grade 4 - 153
 - Grade 8 - 144
 - Grade 12 - 10 – (For National Only)
- 307 (Includes JCPS TUDA Schools)

Total number of students assessed:

- Grade 4 – 4,200
 - Grade 8 – 3,800
- 8,000

2013 Kentucky Participation in NAEP



- Total Kentucky NAEP Districts – **123**

- 4th Grade – **153 (State NAEP)**
 - 8th Grade – **144 (State NAEP)**
 - 12th Grade – 10 (National only)
- 307 Total Schools**

-
- *TUDA (Jefferson County) -100 Schools*



Mathematics

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS AT GRADES 4 AND 8

MATHEMATICS

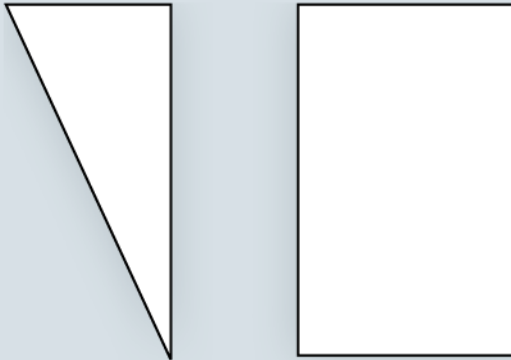


Proportions of questions vary by grade in five mathematical content areas

| | Grade 4 | Grade 8 |
|--|---------|---------|
| Number properties and operations | 40% | 20% |
| Measurement | 20% | 15% |
| Geometry | 15% | 20% |
| Data analysis, statistics, and probability | 10% | 15% |
| Algebra | 15% | 30% |

Geometry Question

Nationwide 49% of fourth-graders were able to identify a property common to two geometric shapes



How are the right triangle and the rectangle alike?

- ☐ A Each figure has at least one right angle.
- ☐ B Each figure has parallel sides.
- ☐ C Each figure has at least one line of symmetry.
- ☐ D Each figure has at least two sides that are the same length.

Percentage of fourth-grade students in each response category: 2011

| Choice A | Choice B | Choice C | Choice D | Omitted |
|----------|----------|----------|----------|---------|
| 49 | 9 | 12 | 29 | 1 |

Eligibility
for free/
reduced-price
school lunch

| | |
|-----|----|
| Yes | 41 |
| No | 58 |

Algebra Question

31% of eighth-graders were able to identify the equation given a point and the slope

Which of the following is an equation of a line that passes through the point (0, 5) and has a negative slope?

- (A) $y = 5x$
- (B) $y = 5x - 5$
- (C) $y = 5x + 5$
- (D) $y = -5x - 5$
- (E) $y = -5x + 5$

Percentage of eighth-grade students in each response category: 2011

| Choice A | Choice B | Choice C | Choice D | Choice E | Omitted |
|----------|----------|----------|----------|----------|---------|
| 12 | 27 | 9 | 20 | 31 | 1 |

| Selected racial/ethnic groups | |
|--|----|
| White | 34 |
| Black | 24 |
| Hispanic | 25 |
| Asian | 52 |
| American Indian/ Alaska Native | 20 |
| Native Hawaiian/ Other Pacific Islander | 22 |

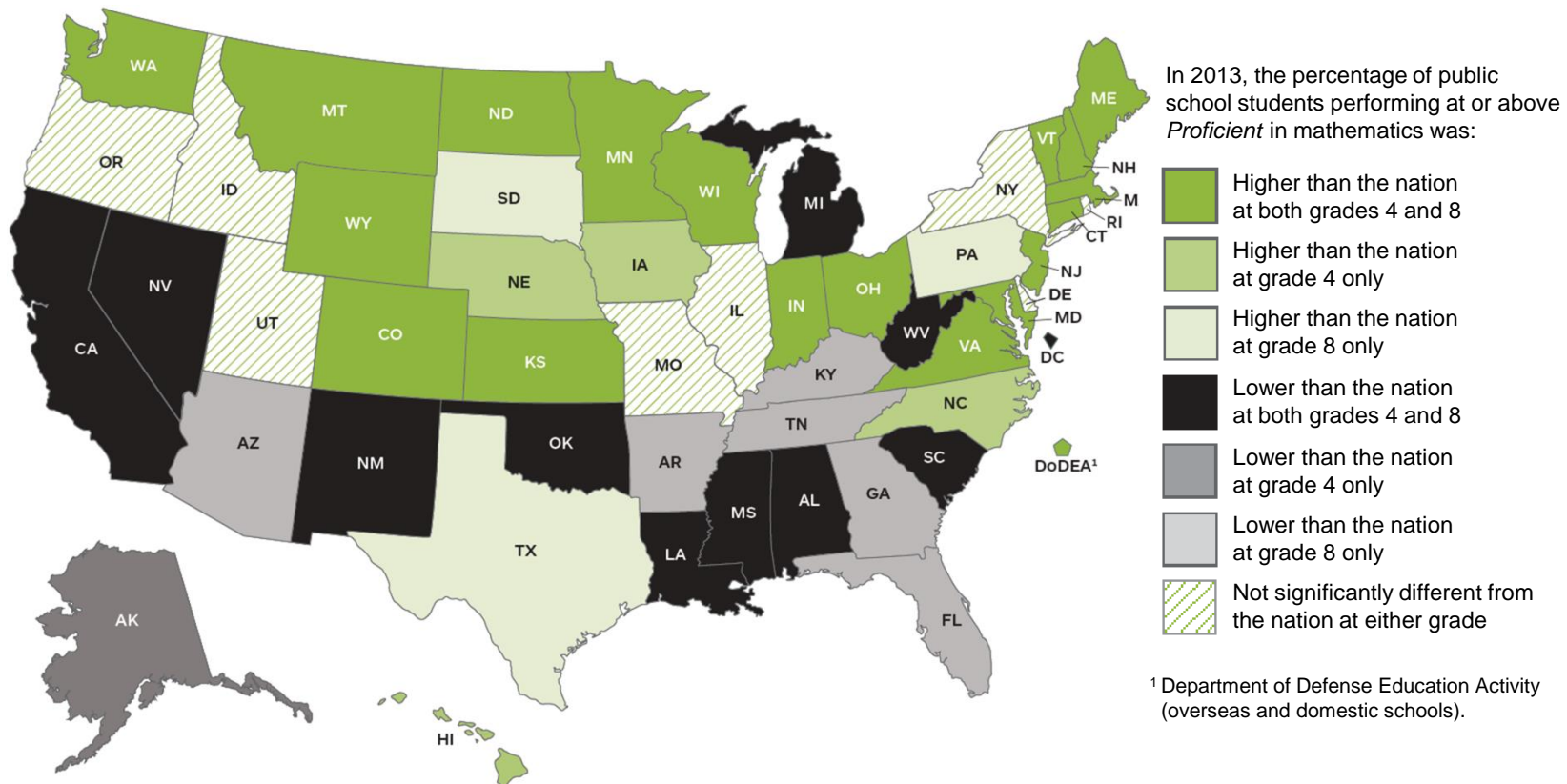
2013 Math: Achievement Levels


Achievement Level Policy Definitions

| | |
|-------------------|---|
| Basic | Partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade. |
| Proficient | Solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter. |
| Advanced | Superior performance. |

Mathematics

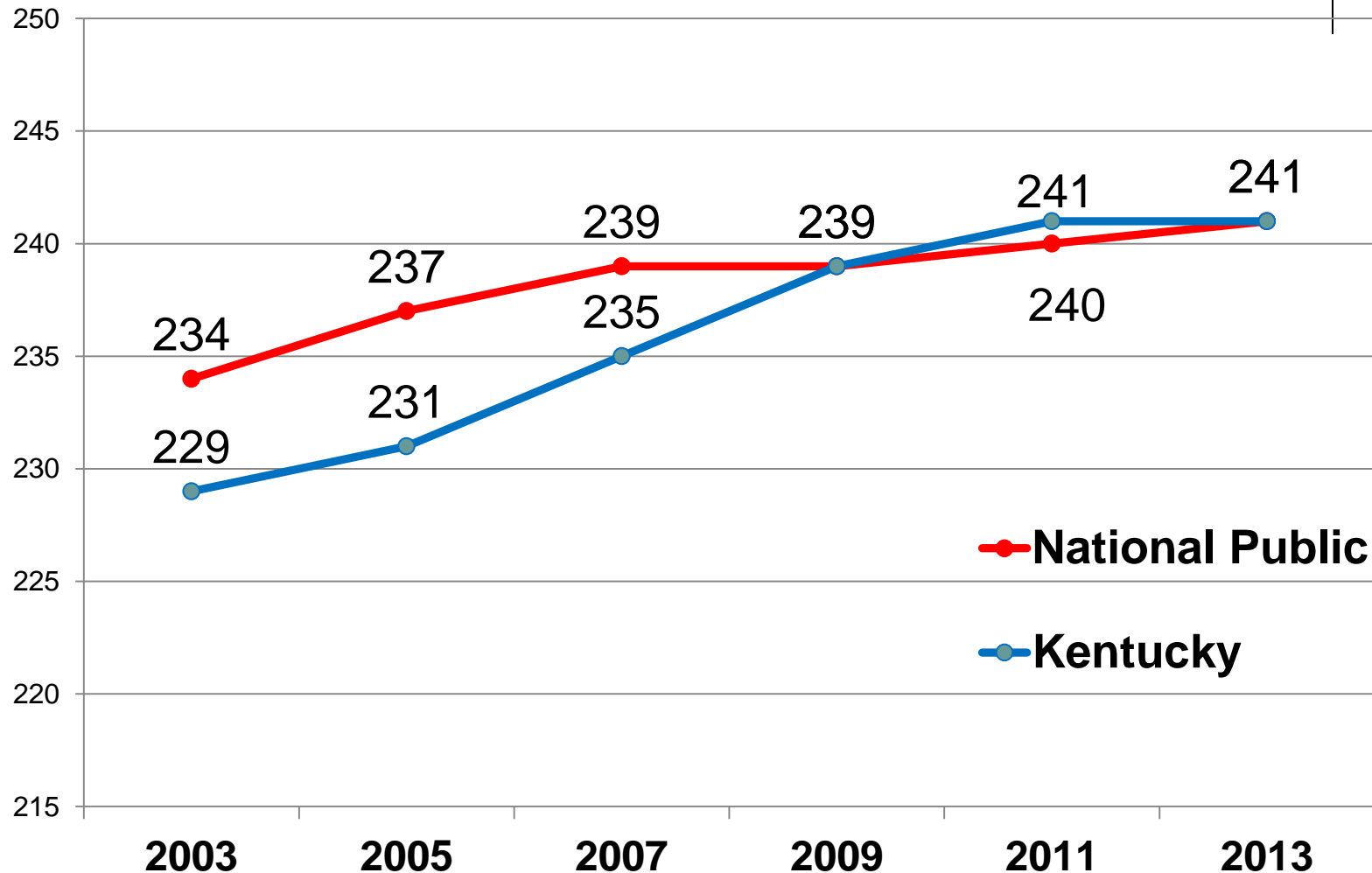
Percentages of 4th- and 8th-graders at or above *Proficient* in mathematics higher than the nation in 19 states/jurisdictions





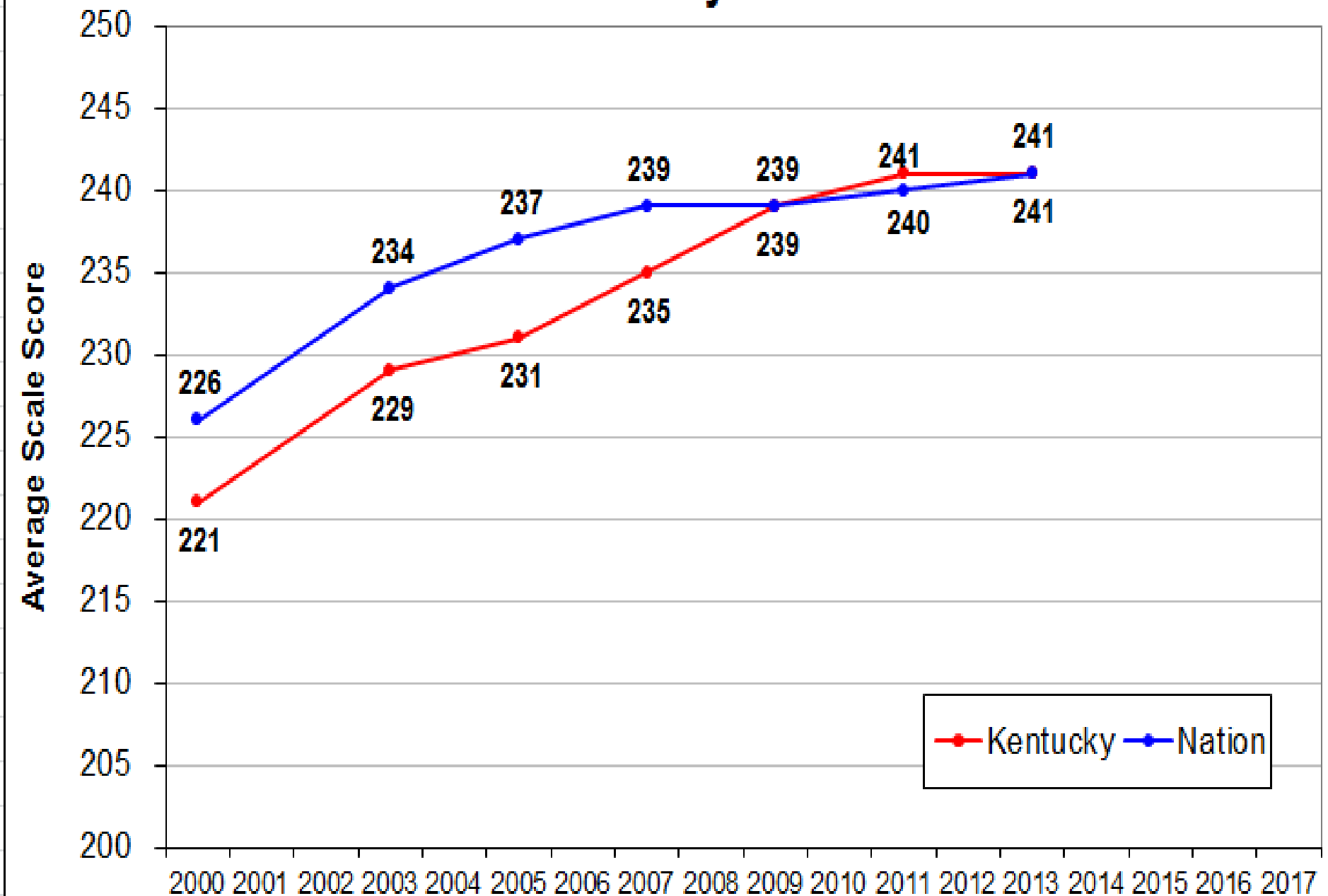
Grade 4 Mathematics Results

2013 Math Grade 4: Average Scale Scores Over Time



NOTE: Observed differences are not necessarily statistically significant.

Math 4th Grade Kentucky vs Nation 2000-2013



2000 to 2013 **Math** Grade 4 Average Scale Scores

| | Kentucky – 4 th Grade Scale Score Average | Nation – 4 th Grade Scale Score Average |
|------|--|--|
| 2000 | 221 | 226 |
| 2003 | 229 | 234 |
| 2005 | 231 | 237 |
| 2007 | 235 | 239 |
| 2009 | 239 | 239 |
| 2011 | 241 | 240 |
| 2013 | 241 | 241 |

KY Average Scale Scores: Grade 4 Math 2000 - 2013



| | Kentucky 4 th Grade Scale Score Average | Nation 4 th Grade Scale Score Average | KY TUDA Average (Jefferson County Public Schools) | TUDA Average (Large Cities) |
|------|---|--|---|--------------------------------------|
| 2000 | 221 | 226 | | |
| 2003 | 229 | 234 | | |
| 2005 | 231 | 237 | | |
| 2007 | 235 | 239 | | |
| 2009 | 239 | 239 | 233 | 231 |
| 2011 | 241 | 240 | 235 | 233 |
| 2013 | 241 | 241 | 234 | 235 |

2013 Math Grade 4 Scale Score

- In 2013, the average scale score for students in Kentucky was 241. This was not significantly different from that of students across the nation (241).
- In Kentucky, the average scale score for students in 2013 was not significantly different from that in 2011 (241). However, the average scale score for student in public schools across the nation in 2013 (241) was higher than that in 2011 (240).

2013 **MATH** Grade 4 Compared w/ Other Jurisdictions

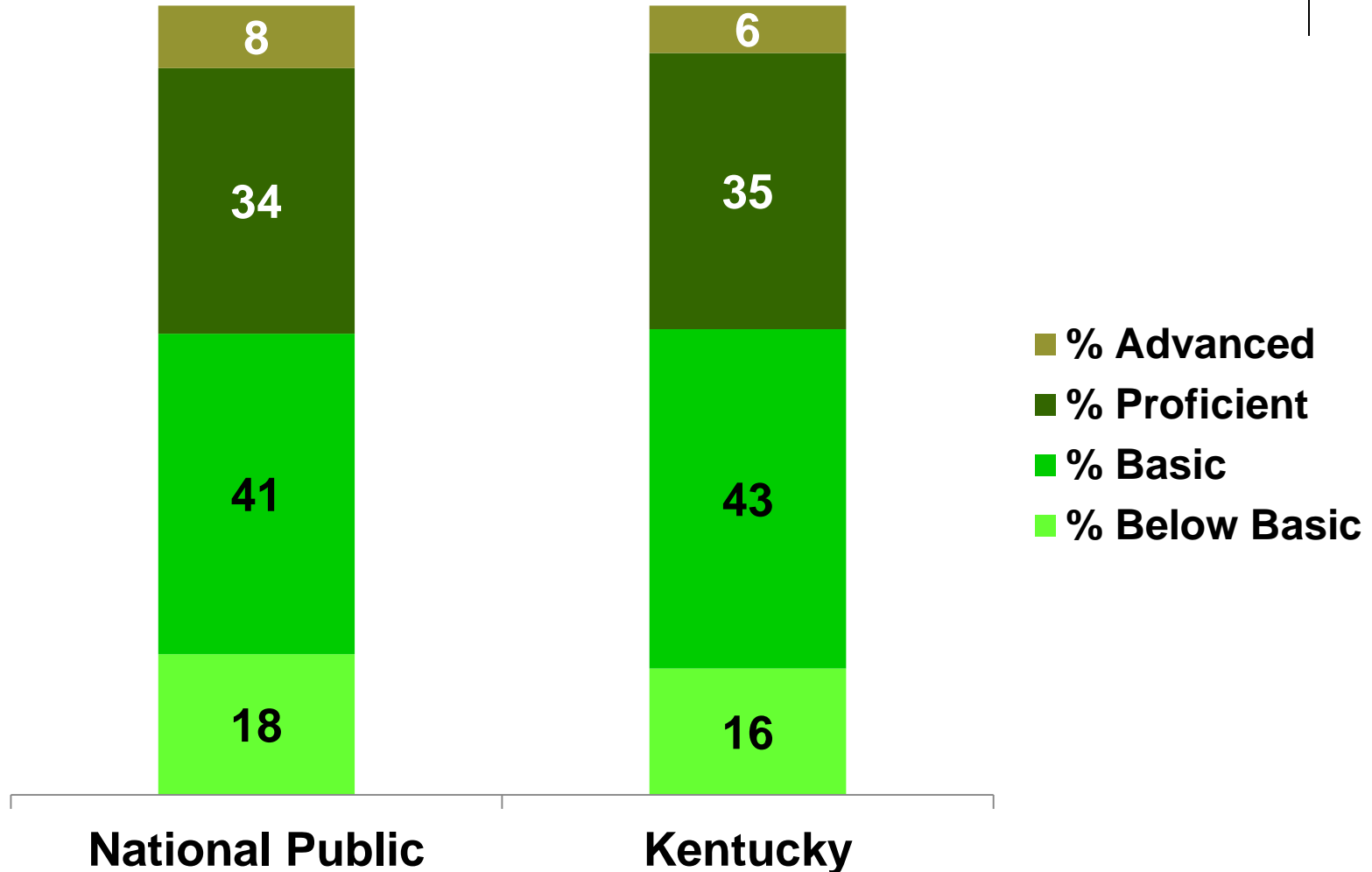
Students' average scale scores:

- Higher than KY (19 Jurisdictions)
- Not significantly different (nation and 20 Jurisdictions)
- Lower than KY (nation and 12 Jurisdictions)

2013 Math Grade 4 Achievement Levels

- In 2013, the percentage of Kentucky's students who performed **at or above Proficient** was 41 percent. This was not significantly different from the percentage of the nation's public school students who performed at or above Proficient (41 percent).
- In Kentucky, the percentage of students who performed **at or above Proficient** in 2013 was greater than the percentages in 1992, 1996, 2000, 2003, 2005, 2007 and 2009 but was not significantly different from the percentage in 2011.

2013 Math Grade 4 Achievement Levels



NOTE: Observed differences are not necessarily statistically significant. Percentages might not sum to 100 due to rounding.

2007 – 2013 Math Grade 4

Exclusion Rates of SD and/or ELL


| | Kentucky's Exclusion Rate | | | | Nation's Exclusion Rate | | | |
|----------|---------------------------|-----|-----|-----|-------------------------|-----|-----|-----|
| | '07 | '09 | '11 | '13 | '07 | '09 | '11 | '13 |
| Percent. | 3* | 3* | 3 | 1 | 3* | 2* | 2 | 2 |

In 2013, **no** states and jurisdictions had lower rates of exclusion than Kentucky's rate.

In 2013, **20** states had higher rates

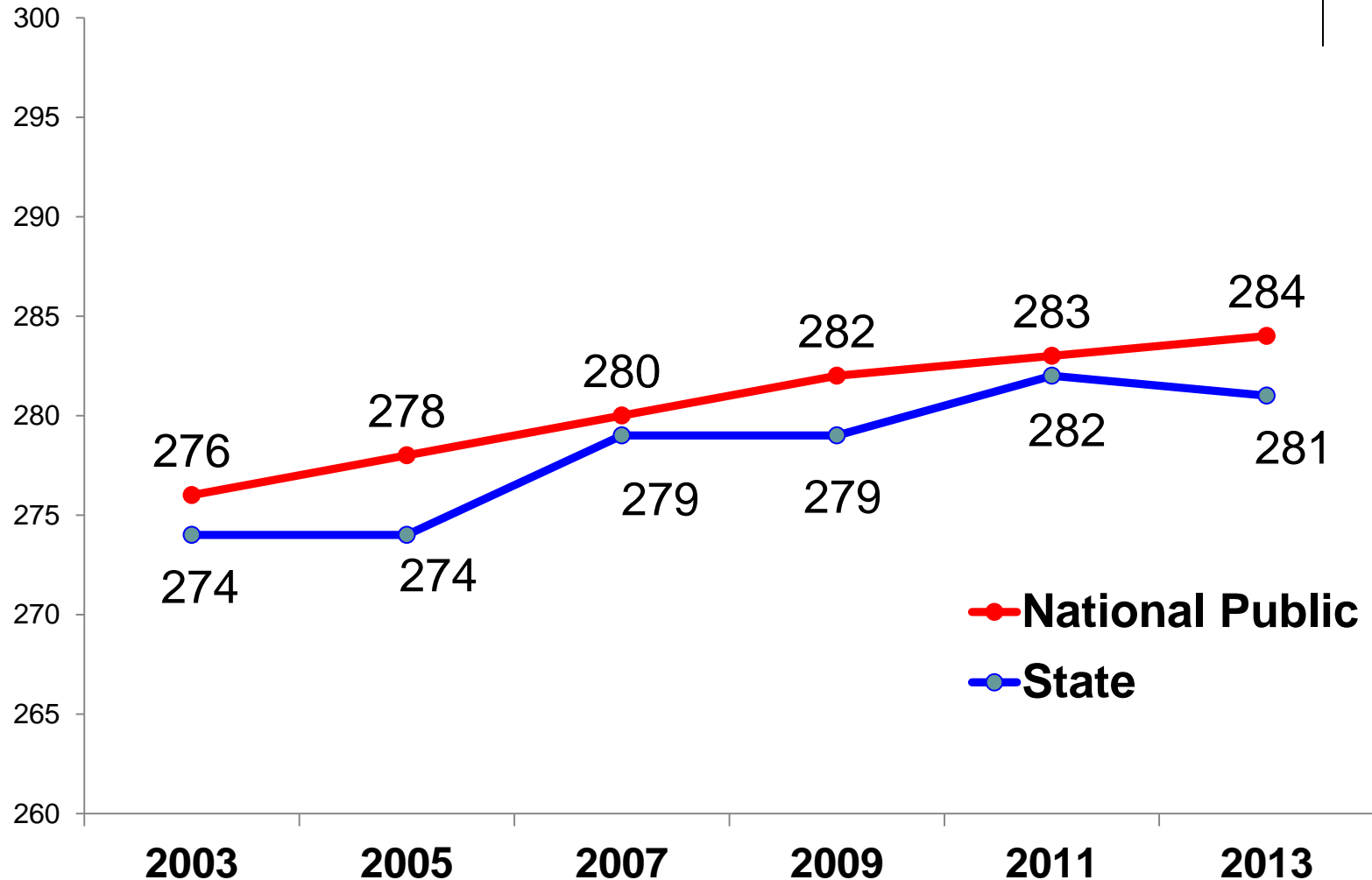
In 2013, **31** states had equal rate

* Rates are rounded to nearest percentage



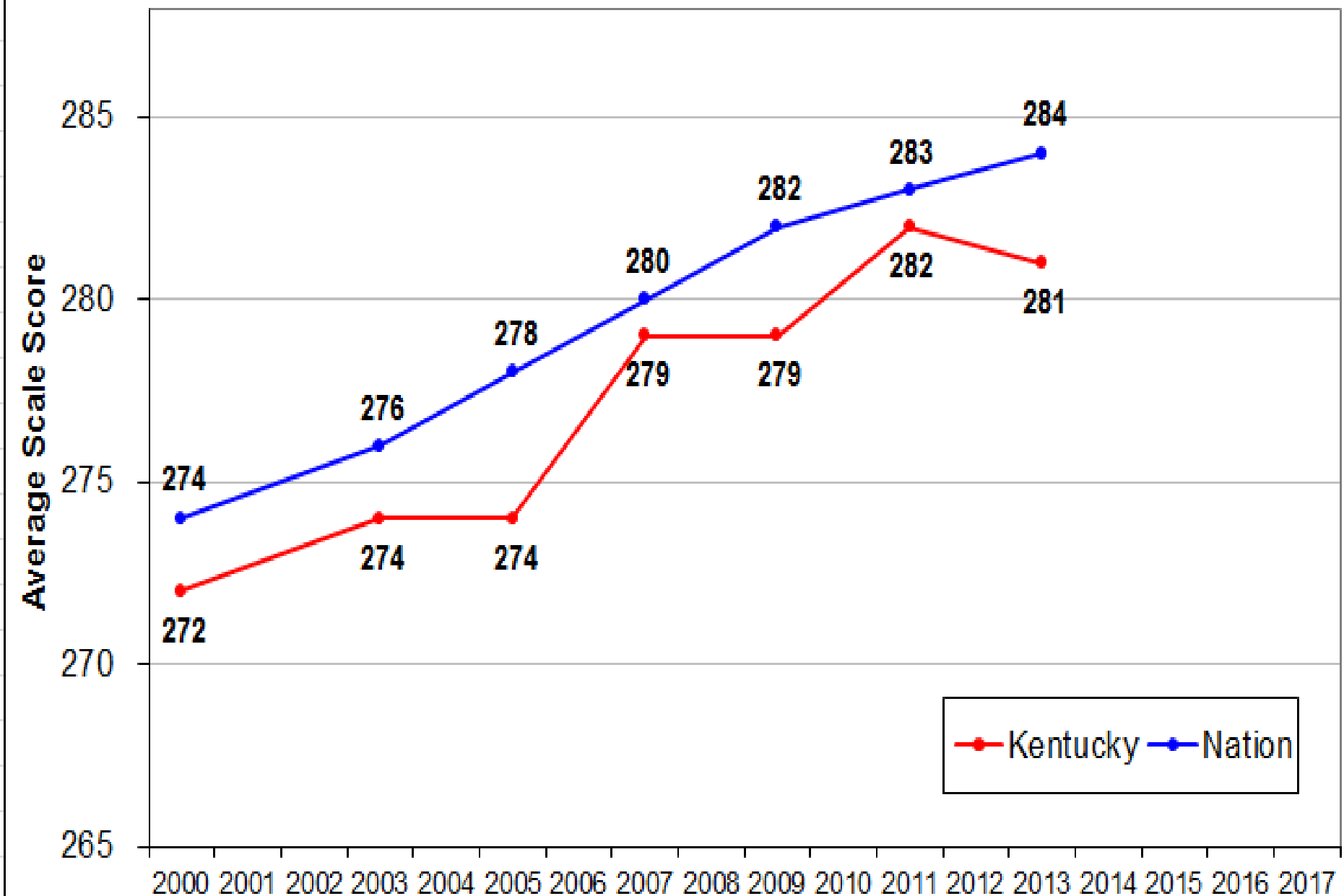
Grade 8 Mathematics Results

2013 Math Grade 8: Average Scale Scores Over Time



NOTE: Observed differences are not necessarily statistically significant.

Math 8th Grade Kentucky vs Nation 2000-2013



2000 to 2013 **Math** Grade 8 Average Scale Scores

| | Kentucky – 8th Grade Scale Score Average | Nation – 8th Grade Scale Score Average |
|-------------|--|--|
| 2000 | 270 | 272 |
| 2003 | 274 | 276 |
| 2005 | 274 | 278 |
| 2007 | 279 | 280 |
| 2009 | 279 | 282 |
| 2011 | 282 | 283 |
| 2013 | 281 | 284 |

KY Average Scale Scores: Grade 8 Math 2000 - 2013

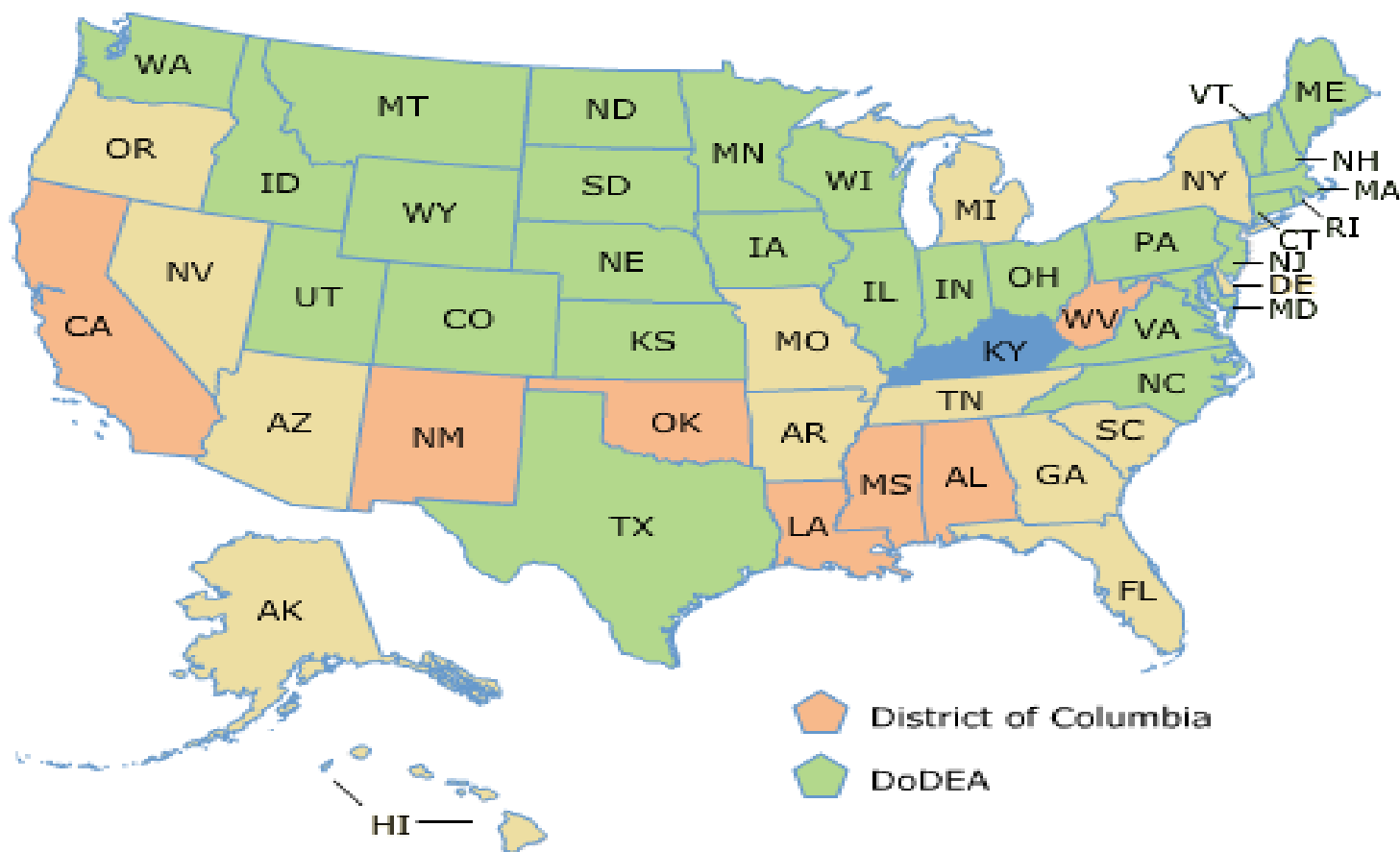


| | Kentucky 8 th Grade Scale Score Average | Nation 8 th Grade Scale Score Average | KY TUDA Average (Jefferson County Public Schools) | TUDA Average (Large Cities) |
|------|--|--|--|--------------------------------------|
| 2000 | 270 | 272 | | |
| 2003 | 274 | 276 | | |
| 2005 | 274 | 278 | | |
| 2007 | 279 | 280 | | |
| 2009 | 279 | 282 | 271 | 271 |
| 2011 | 282 | 283 | 274 | 274 |
| 2013 | 281 | 284 | 273 | 276 |

2013 Math Grade 8 Scale Score

- In 2013, the average scale score for students in Kentucky was 281. This was not significantly different from that of students across the nation (284).
- In Kentucky, the average scale score for students in 2013 was not significantly different from that in 2011 (282). However, the average scale score for student in public schools across the nation in 2013 was higher than that in 2011 (283).

2013 Math Grade 8



■ National public

2013 **MATH** Grade 8 Compared w/ Other Jurisdictions

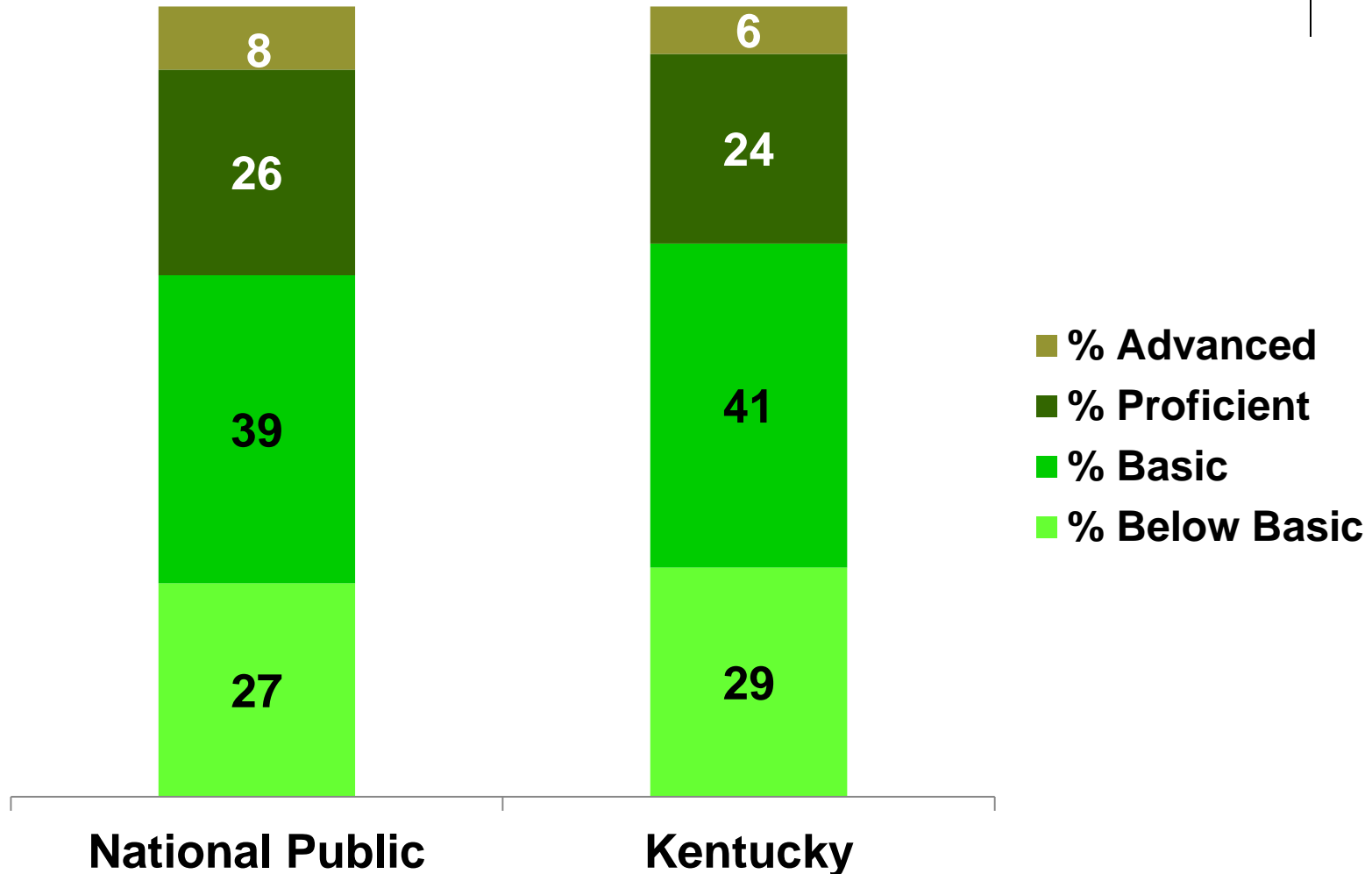
Students' average scale scores:

- Higher than KY (8 Jurisdictions)
- Not significantly different (14 Jurisdictions)
- Lower than KY (29 Jurisdictions)

2013 Math Grade 8 Achievement Levels

- In 2013, the percentage of Kentucky's students who performed at or above Proficient was 30 percent. This was smaller than the percentage of the nation's public school students who performed at or above Proficient (34 percent).
- In Kentucky, the percentage of students who performed at or above Proficient in 2013 was greater than the percentages in 1990, 1992, 1996, 2000, 2003 and 2005, but was not significantly different from the percentages in 2007, 2009 and 2011.

2013 Math Grade 8: Achievement Levels



NOTE: Observed differences are not necessarily statistically significant. Percentages might not sum to 100 due to rounding.

2013 Math Exclusion Rates of SD and/or ELL – Grade 8


| | Kentucky Exclusion Rate | | | | Nation Exclusion Rate | | | |
|------------|----------------------------|-----|-----|-----|--------------------------|-----|-----|-----|
| | '07 | '09 | '11 | '13 | '07 | '09 | '11 | '13 |
| Percentage | 7* | 5* | 3 | 2 | 4* | 3* | 3 | 2 |

In 2013, **25** states and jurisdictions had lower rates of exclusion than Kentucky's rate.

In 2013, **1** state had higher rates.

In 2013, **25** states had equal rate.

* Rates are rounded to nearest percentage



Summary of Mathematics Gap Results

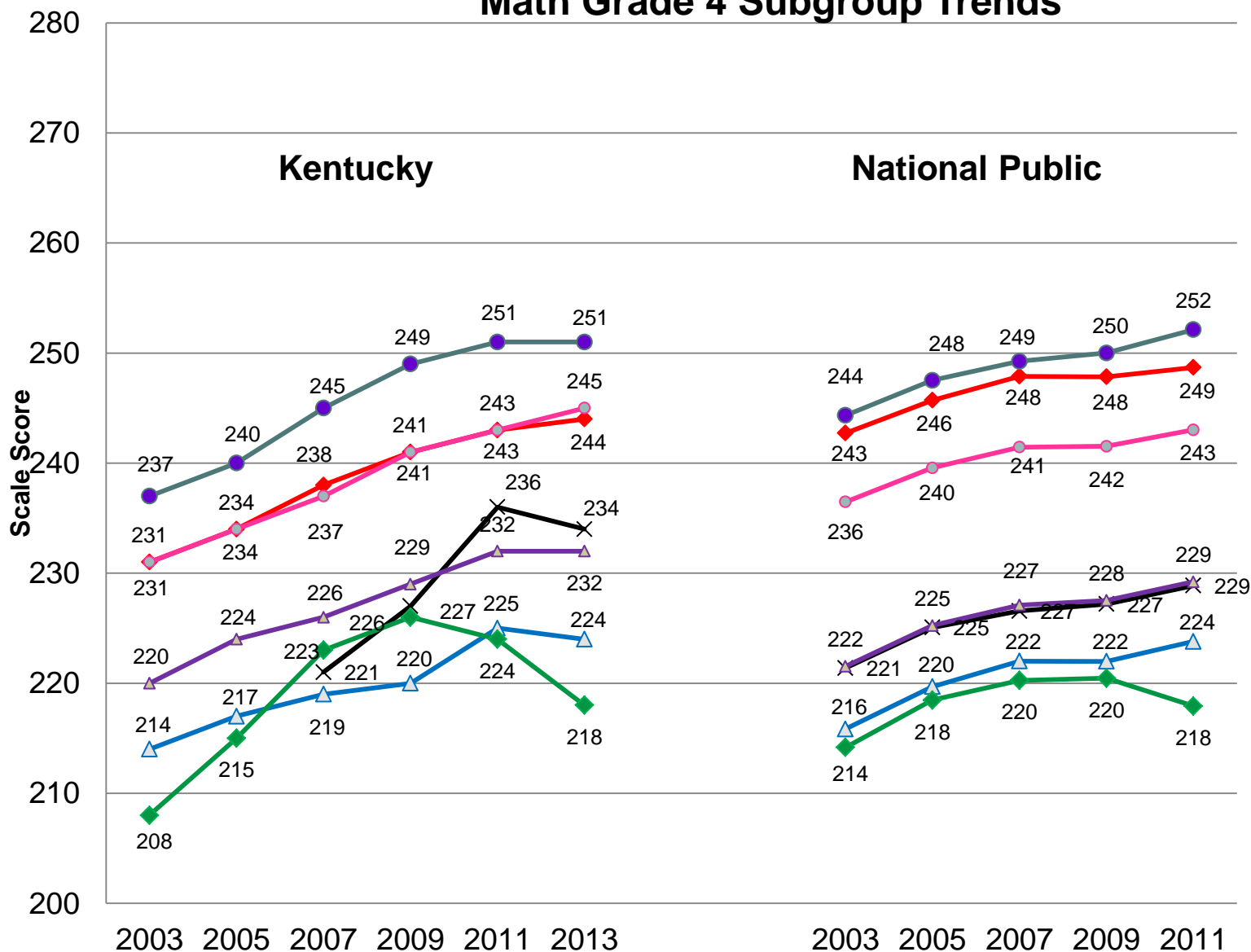
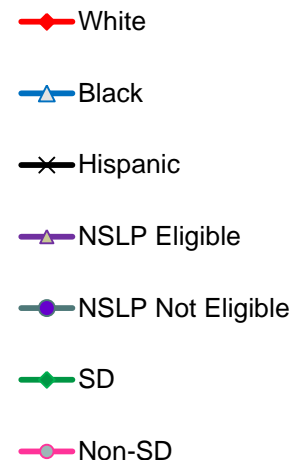
2013 Math Scale Scores

| | Kentucky | Nation |
|---|----------|--------|
| 4 th Grade Mathematics Scale Score | 241 | 241 |
| 8 th Grade Mathematics Scale Score | 281 | 284 |

2003-2013 Math Grade 4 Subgroup Trends

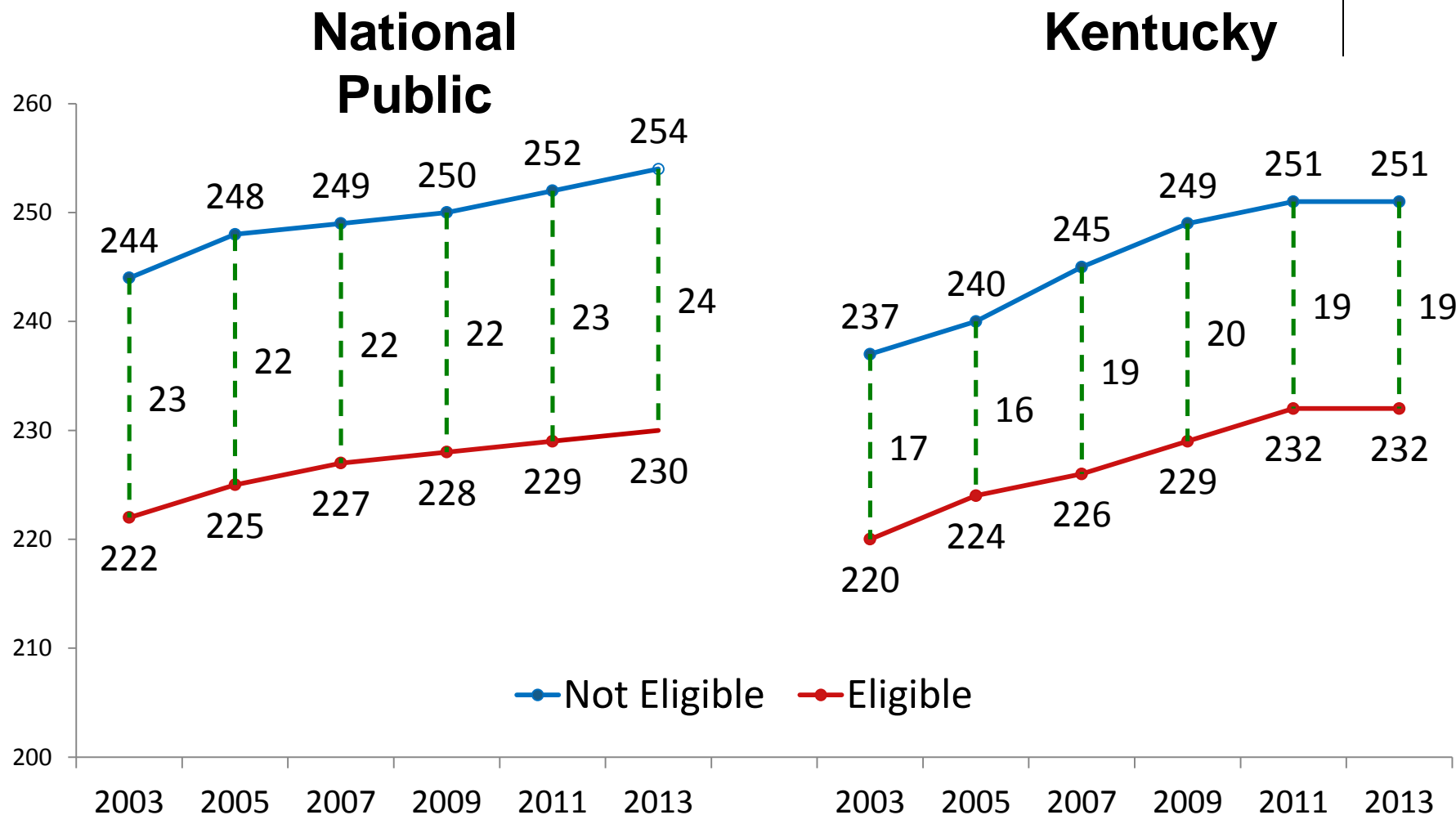
Kentucky

National Public



2013 Math Grade 4

Gap Comparison: Free/Reduced



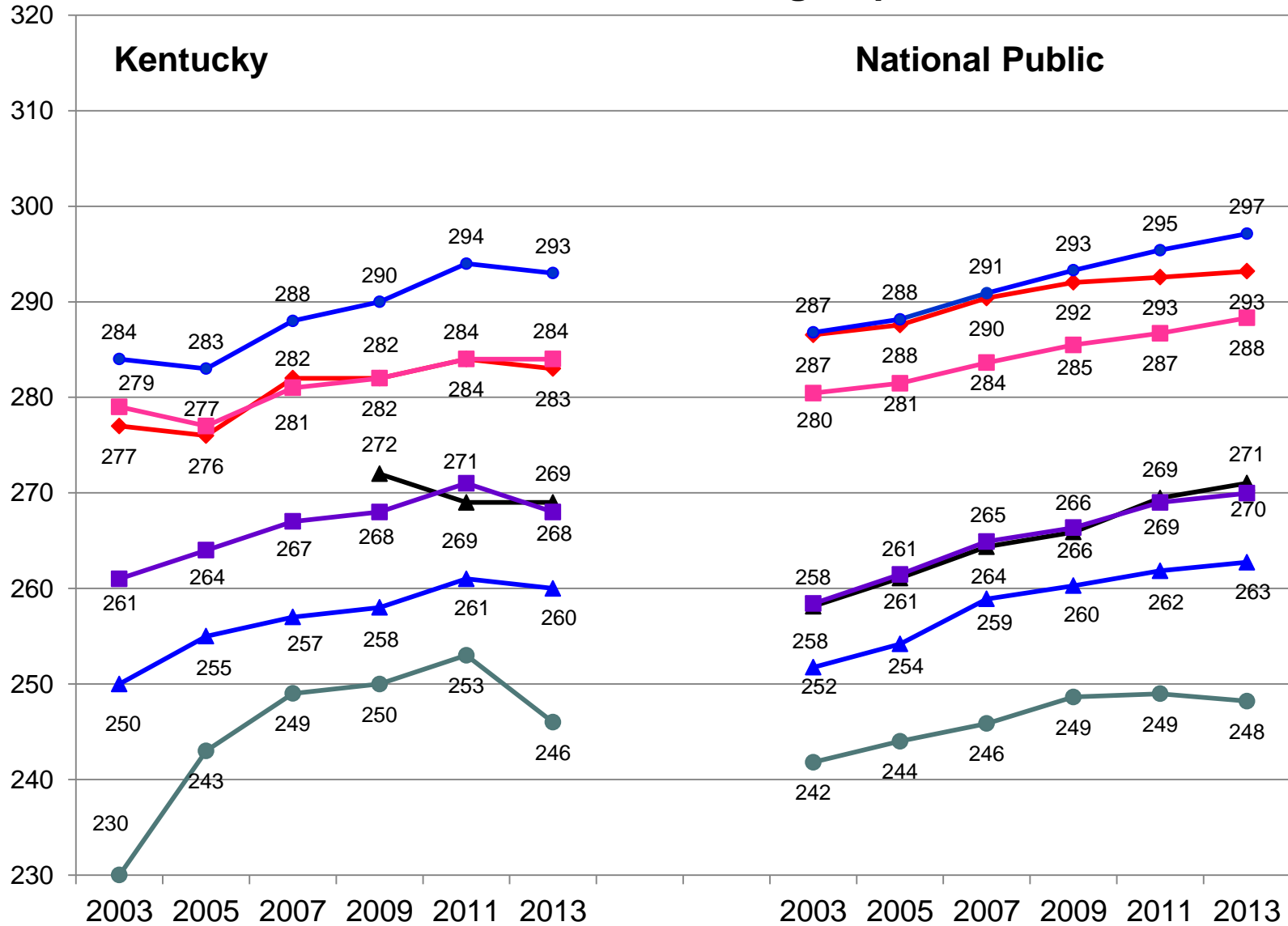
NOTE: Observed differences are not necessarily statistically significant. Score gaps are calculated based on differences between unrounded average scale scores.

2003-2013 Math Grade 4 Subgroup Trends

| | Overall | White | Black | Hispanic | Free/ Reduced Lunch | Not Eligible F/RL | Students w Disabilities | Non- SD |
|------|---------|-------|-------|----------|---------------------------|-------------------------|-------------------------------|------------|
| 2003 | 229 | 231 | 214 | * | 220 | 237 | 208 | 231 |
| 2005 | 231 | 234 | 217 | * | 224 | 240 | 215 | 234 |
| 2007 | 235 | 238 | 219 | 221 | 226 | 245 | 223 | 237 |
| 2009 | 239 | 241 | 220 | 227 | 229 | 249 | 226 | 241 |
| 2011 | 241 | 243 | 225 | 236 | 232 | 251 | 224 | 243 |
| 2013 | 241 | 244 | 224 | 234 | 232 | 251 | 218 | 245 |

2003-2013

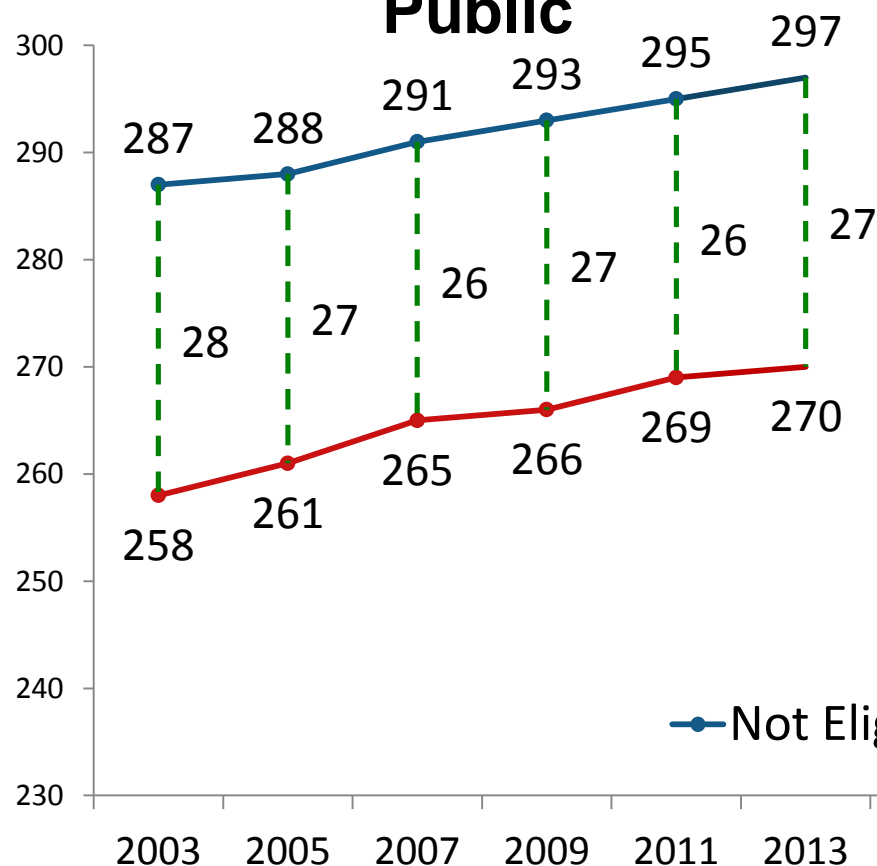
Math Grade 8 Subgroup Trends



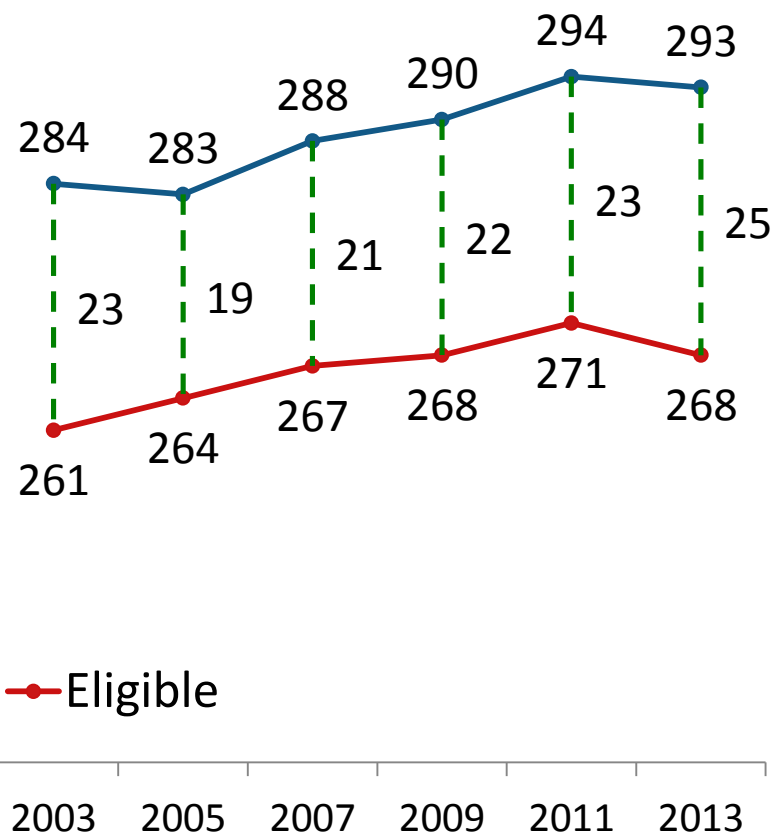
2013 Math Grade 8

Gap Comparison: Free/Reduced

National Public



State



NOTE: Observed differences are not necessarily statistically significant. Score gaps are calculated based on differences between unrounded average scale scores.

2003-2013 Math Grade 8 Subgroup Trends

| | Overall | White | Black | Hispanic | Free/ Reduced Lunch | Not Eligible F/RL | Students w Disabilities | Non- SD |
|------|---------|-------|-------|----------|---------------------------|-------------------------|-------------------------------|------------|
| 2003 | 274 | 277 | 250 | * | 261 | 284 | 230 | 279 |
| 2005 | 274 | 276 | 255 | * | 264 | 283 | 243 | 277 |
| 2007 | 279 | 282 | 257 | * | 267 | 288 | 249 | 281 |
| 2009 | 279 | 282 | 258 | 272 | 268 | 290 | 250 | 282 |
| 2011 | 282 | 284 | 261 | 269 | 271 | 294 | 253 | 284 |
| 2013 | 281 | 283 | 260 | 269 | 268 | 293 | 246 | 284 |

Math by Free/Reduced Lunch

Grades 4 and 8 – 2000 to 2013

| | 4 th Grade Eligible - KY (Nation) | 4 th Grade Not Eligible - KY (Nation) | 8 th Grade Eligible – KY (Nation) | 8 th Grade Not Eligible - KY (Nation) |
|-------------|--|--|--|--|
| 2000 | 207 (208) | 230 (235) | 255 (253) | 280 (283) |
| 2003 | 220 (222) | 237 (244) | 261 (258) | 284 (287) |
| 2005 | 224 (225) | 240 (248) | 264 (261) | 283 (288) |
| 2007 | 226 (227) | 245 (249) | 267 (265) | 288 (291) |
| 2009 | 229 (228) | 249 (250) | 268 (266) | 290 (293) |
| 2011 | 232 (229) | 251 (252) | 271 (269) | 294 (295) |
| 2013 | 232 (230) | 251 (254) | 268 (270) | 293 (297) |

Math by Gender

Grades 4 and 8 – 2000 to 2013

| | 4 th Grade Male KY (Nation) | 4 th Grade Female KY (Nation) | 8 th Grade Male KY (Nation) | 8 th Grade Female KY (Nation) |
|-------------|--|--|--|--|
| 2000 | 220 (225) | 219 (223) | 271 (273) | 269 (271) |
| 2003 | 230 (235) | 227 (233) | 275 (277) | 274 (275) |
| 2005 | 233 (238) | 230 (236) | 275 (278) | 273 (277) |
| 2007 | 237 (240) | 234 (238) | 280 (281) | 277 (279) |
| 2009 | 240 (240) | 238 (238) | 281 (283) | 278 (281) |
| 2011 | 242 (241) | 240 (239) | 282 (283) | 281 (282) |
| 2013 | 242 (242) | 241 (241) | 281 (284) | 280 (283) |

Math by Race

Grades 4 and 8 – 2000 to 2013

| | 4 th Grade White KY (Nation) | 4 th Grade American - African KY (Nation) | 8 th Grade White KY (Nation) | 8 th Grade American - African KY (Nation) |
|-------------|---|---|---|---|
| 2000 | 223 (233) | 196 (203) | 272 (283) | 250 (243) |
| 2003 | 231 (243) | 214 (216) | 277 (287) | 250 (252) |
| 2005 | 234 (246) | 217 (220) | 276 (288) | 255 (254) |
| 2007 | 238 (248) | 219 (222) | 282 (290) | 257 (259) |
| 2009 | 241 (248) | 220 (222) | 282 (292) | 258 (260) |
| 2011 | 243 (249) | 225 (224) | 284 (293) | 261 (262) |
| 2013 | 244 (250) | 224 (224) | 283 (293) | 260 (263) |

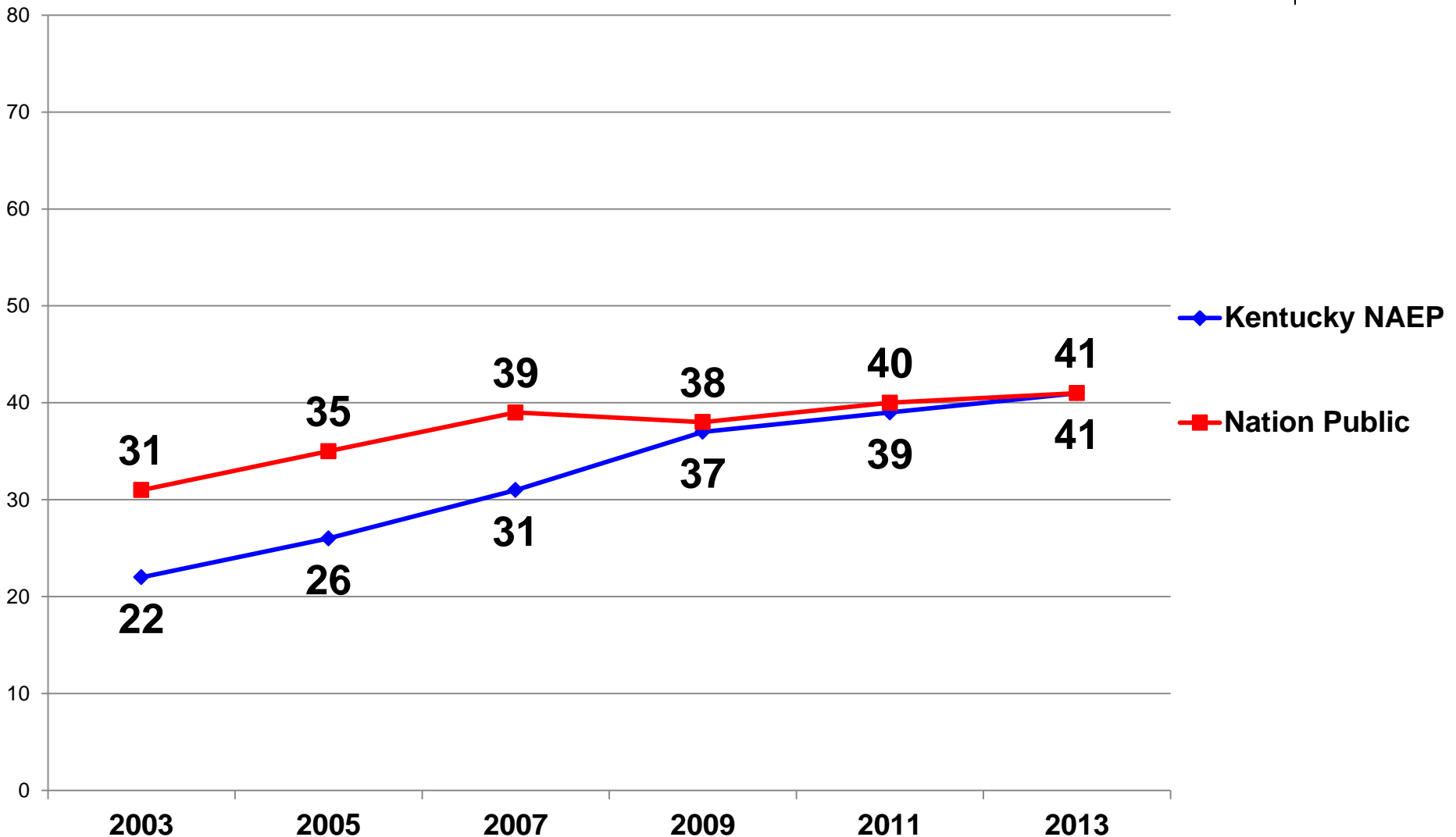
Parent's Highest Level of Education Matters — 8th grade survey



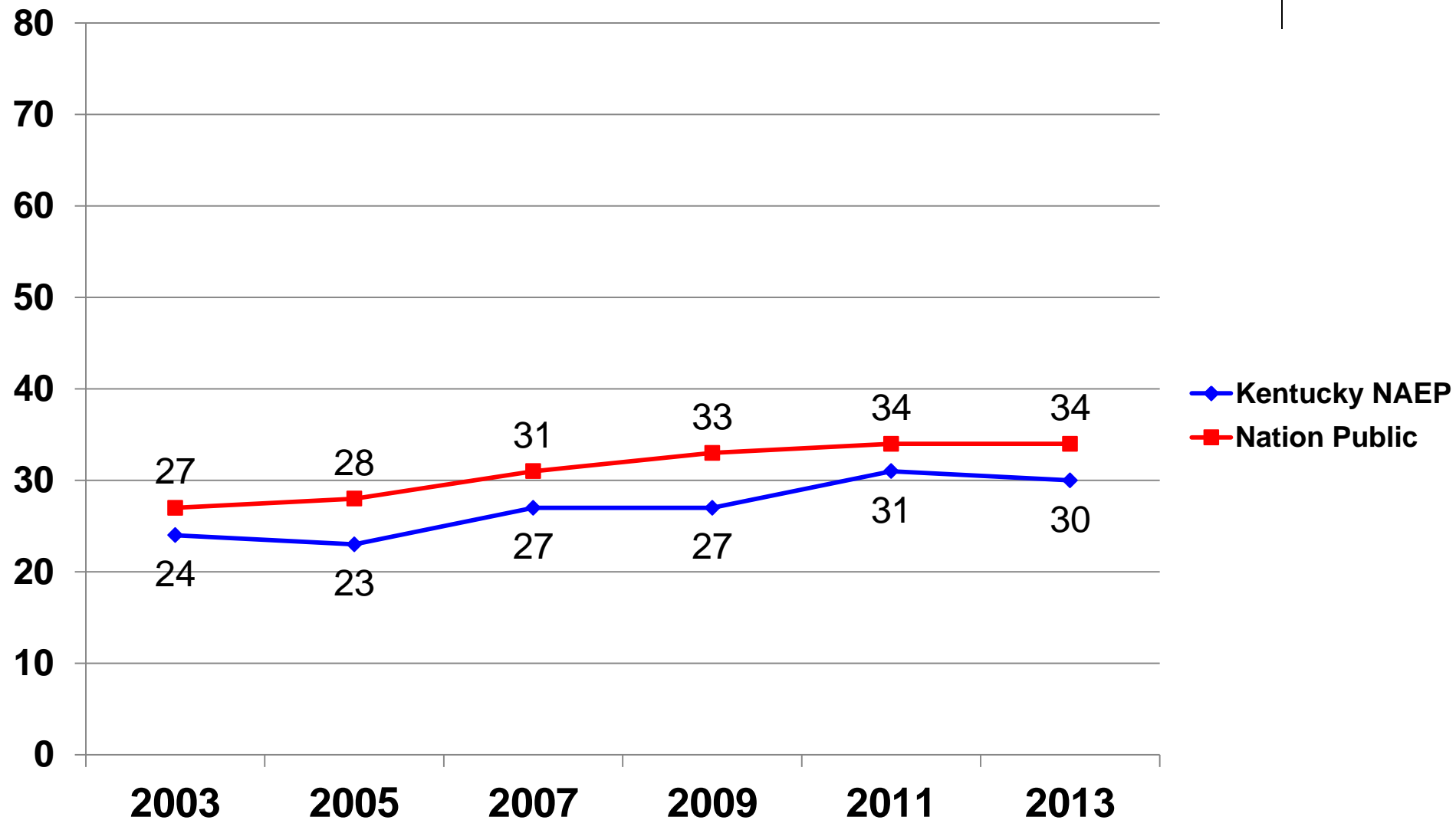
| Math 2013 | Did not graduate HS | | Graduated HS only | | Some Higher Education | | Graduated College | |
|------------------------|---|-------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
| | KY 7% | (Nation) (8%) | KY 19% | (Nation) (17%) | KY 20% | (Nation) (15%) | KY 45% | (Nation) (49%) |
| Scale Score | 262 | (267) | 270 | (270) | 281 | (285) | 291 | (295) |
| | <i>% at or above Proficient</i> | | <i>% at or above Proficient</i> | | <i>% at or above Proficient</i> | | <i>% at or above Proficient</i> | |
| Percent | 11 | (16) | 20 | (19) | 28 | (33) | 42 | (47) |

Percent of students who did not report parent's highest level of education: 9% of Kentucky grade 8 students and 12 % of Nation (public) grade 8 students.

NAEP Math Grade 4: At or Above Proficient



NAEP Math Grade 8: At or Above Proficient



For more information

The collage features two book covers and a screenshot of the Nation's Report Card website. The top-left book cover is for 'Mathematics 2011' and shows a boy writing on a chalkboard. The bottom-left book cover is for 'Reading 2011' and shows a girl smiling at a desk. The website screenshot on the right shows the 'The Nation's Report Card' header with navigation links (Home, About The Nation's Report Card, Help) and a search bar. Below the header is a 'Reports' section with a link to 'Arts'. A large image of a teacher and four students is displayed. To the right of the image is a 'Coming Soon' announcement: 'Results of the 2011 Reading and Mathematics Assessments at Grades 4 and 8'.

Mathematics 2011
NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

Reading 2011
NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS AT GRADES 4 AND 8

The Nation's Report Card

Home | About The Nation's Report Card | Help

Search

...the official site for results from the National Assessment of Educational Progress

Reports

Arts

Coming Soon:

Results of the
2011 Reading and Mathematics Assessments
at Grades 4 and 8

<http://nationsreportcard.gov>

**Thanks for learning about Kentucky's
NAEP data on our Nation's Report
Card!!!**

Explore the results on the new online report card



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